IGARSS 2000 ABSTRACT SUBMISSION TEMPLATE

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ABSTRACT TITLE:

Cassini Observes the Earth with Ku-band Radar and Radiometry

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ABSTRACT TEXT:

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On August 18, 1999, the Cassini spacecraft flew by the Earth to obtain a gravity assist on its journey out to Saturn. The Ku-band radar and radiometer instruments were operated over the South Pacific ocean and over South America. The data collected offer a unique opportunity to compare and cross-calibrate the Cassini Radar with various Earth orbiting sensors. In this presentation we show the Cassini Radiometer data and discuss the calibration model applied to derive brightness temperatures. The brightness temperature data show an abrupt transition at the ocean-land boundary, and more subtle details over South America. In the future, the Cassini Radiometer will map the surface brightness of Titan (the largest moon of Saturn) looking for similar details and mapping out any oceans present. We also show backscatter data from the radar and compare with measurements made by the QuikSCAT and TRMM missions at the same location, and nearly the same time. The Cassini backscatter data clearly show a low wind area off the coast of South America which is also visible in QuikSCAT data. Comparisons like this will aid in calibrating and interpreting the backscatter data collected at Titan.

TOPIC PREFERENCE: A.26: Planetary Studies